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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/399,502	09/20/1999	GARY D. MARTIN	AMCC3000	2333

7590

11/18/2004

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EXAMINER

REVAK, CHRISTOPHER A

ART UNIT	PAPER NUMBER
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2131

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/399,502

Applicant(s)

MARTIN, GARY D.

Examiner

Christopher A. Revak

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-17,19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

PROSECUTION IS HEREBY REOPENED.

2. Applicant's arguments with respect to claims 1-5,7,9, and 10 have been considered but are moot in view of the new ground of rejection.

3. The Applicant's argument with respect to claim 19 is non-persuasive. It is argued by the Applicant that the examiner has not shown a teaching that discloses "at least one overhead bit in the frame to disable the scramble pattern device or scramble pattern generator". The examiner respectfully disagrees. It has been argued by the examiner that Nohara discloses in column 3, starting at line 41, that the transmitted signal has framing bits to assist with bounded data in predetermined frames. Nohara recites that the interleaver pattern can be optionally changed within the number of data in a transmission frame as recited in column 3, lines 30-31. It is interpreted by the examiner that this evidence, as taught by Nohara, would lead one of ordinary skill in induce that there are overhead bits present that would inform the descrambler about these changes since it is essential that these overhead bits, or control bits dictate a specific operation that is to be performed by the circuitry, namely the scramble pattern device. Since Nohara discloses of sending framing bits, it is interpreted by the examiner that the teachings of Nohara comprise at least overhead bit in the frame to disable the scramble

pattern. To support the examiner's interpretation, Huscroft, U.S. Patent 6,188,692 discloses of overhead bits acting as control bits that dictate whether scrambling is to be enabled or disabled, please refer to column 1, lines 48-53 and column 6, line 65 through column 7, line 3.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Nohara et al, U.S. Patent 5,881,154.

As per claim 19, Nohara et al teach a means for generating information', a means for assembling the information into frames that include both the information and system overhead for transmission, and a means for self-synchronously and continuously scrambling the frames from said assembly means, subsequent to the assembly of the frames, whereby information and overhead are encrypted for transmission (Fig 1), in which self synchronous scrambling means includes control inputs with timing data that are synchronous to at least one overhead bit in the frame to disable said scrambling means, whereby the scrambling operation becomes modifiable (column 1, lines 32-44).

Nohara discloses in column 3, starting at line 41, that the transmitted signal has framing bits to assist with bounded data in predetermined frames. Nohara recites that the interleaver pattern can be optionally changed within the number of data in a transmission frame as recited in column 3, lines 30-31. It is interpreted by the examiner that this evidence, as taught by Nohara, would lead one of ordinary skill in induce that there are overhead bits present that would inform the descrambler about these changes since it is essential that these overhead bits, or control bits dictate a specific operation that is to be performed by the circuitry, namely the scramble pattern device.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5,7,9,10, and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nohara et al, U.S. Patent 5,881,154 in view of Kotzin et al, U.S. Patent 4,979,188.

As per claim 1, Nohara et al teach a frame generator having a first input to accept information to be transmitted, said frame generator organizing the information into frames including both the information and system overhead, said frame generator having an output to provide frames of information to be transmitted, frame generator divides each frame into time multiplexed sections including a first frame period when

information is included in the frame, and a second frame period when overhead is included in the frame, said frame generator having a second output to provide timing information regarding the occurrence of the first and second frame periods; and a self-synchronous scrambling circuit having a first input operatively connected to the output of said frame generator (column 1, lines 25-30, column 2, lines 50-55, and Figs 1 and 4), said scrambler having a second input operatively connected to second output of said frame generator, said scrambler selectively scrambling frame sections in response to the received frame period timing information, whereby frame sections are selectively encrypted for transmission (column 3, lines 55-65 and Figs 4 and 6). The teachings of Nohara are silent in disclosing of encrypting the overhead sections of the frame. It is disclosed by Kotzin of the overhead data (column 12, lines 45-48 and column 14, lines 61-66). It is obvious to a person of ordinary skill in the art at the time of the invention to have been motivated to apply the encryption of overhead sections for security purposes. Kotzin recites motivation for the encryption of overhead sections by disclosing that complete security is ensured (column 12, lines 45-49). It is obvious that the teachings of Nohara would have been further improved to protect overhead sections by encrypting them for protection purposes as is disclosed by Kotzin.

As per claim 2, Nohara et al teach a data generator having an output operatively connected to the input of said frame generator to provide information to be transmitted (Fig 1).

As per claim 3, Nohara et al teach a self-synchronous de-scrambling circuit having a first input operatively connected to the output of said scrambling circuit, said de-scrambling circuit decrypting the received encrypted frames to provide received frames of information at an output (column 2, lines 55-63).

As per claim 4, Nohara et al teach a frame terminal having an input operatively connected to the output of said de-scrambling circuit, said frame terminal removing the overhead information associated with each frame to provide the transmitted information, whereby the transmitted information is recovered (column 2, lines 55-63).

As per claim 5, Nohara et al inherently teach an information terminal having a first input operatively connected to the output of said frame terminal to receive the transmitted information because the data that is sent out must flow to a source that is to perform some action with the recovered data (column 2, line 63).

As per claim 7, Nohara et al teach said scrambling circuit encrypts the information section of each frame in accordance with a first predetermined encryption pattern (Fig 6).

As per claim 9, Nohara et al teach frame terminal divides each received frame into time multiplexed sections including a first frame period when information is included in the frame and a second frame period when overhead is included in the frame, said

frame terminal having a second output to provide timing information regarding the occurrence of the first and second frame periods, and in which said descrambling circuit has a second input operatively connected to second output of the frame terminal, said de-scrambling circuit for selectively decrypting frame sections in accordance with the first encryption pattern in response to the received frame period timing information, whereby frame sections are selectively decrypted (column 3, lines 55-65 and Figs 4 and 6).

As per claim 10, Nohara et al teach said de-scrambler circuit is for decrypting only the information section of each frame in response to timing signals received from the second output of said frame terminal, whereby the overhead data is not de-scrambled (column 3, lines 55-65 and Figs 8 and 6).

As per claim 12, Nohara et al does not explicitly teach that said frame generator accepts packets of HDLC information, in which said frame generator organizes the information and overhead in frames according to SONET protocols, in which said frame terminal accepts information organized into frames according to SONET protocols, and in which said frame terminal supplies packets of HDLC information. However, Nohara et al does teach that their system is for the use of transmitting ATM cells. It is obvious to one of ordinary skill in the art that ATM cells often travel over SONET. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Nohara et al and apply their teachings of frame transferring to SONET protocols.



As per claim 13, Nohara et al teach the steps of:

- a) accepting information to be transmitted (Fig 1, element 10),
- b) organizing the information into frames including time multiplexed sections of information and sections of overhead (Fig 1, element 11),
- c) self-synchronously scrambling the frames by either encrypting only the information sections in accordance with a first predetermined encryption pattern or by encrypting the information sections in accordance with the first predetermined encrypting pattern and selectively encrypting the overhead sections in accordance with a second predetermined encryption pattern (Fig 1, element 14), and
- d) transmitting the scrambled frames (Fig 1).

The teachings of Nohara are silent in disclosing of encrypting the overhead sections of the frame. It is disclosed by Kotzin of the overhead data (column 12, lines 45-48 and column 14, lines 61-66). It is obvious to a person of ordinary skill in the art at the time of the invention to have been motivated to apply the encryption of overhead sections for security purposes. Kotzin recites motivation for the encryption of overhead sections by disclosing that complete security is ensured (column 12, lines 45-49). It is obvious that the teachings of Nohara would have been further improved to protect overhead sections by encrypting them for protection purposes as is disclosed by Kotzin.

As per claim 14, Nohara et al teach the steps of:

- e) receiving the scrambled frames (column 2, lines 56),

- f) self-synchronously de-scrambling the frames in accordance with the first encryption pattern (column 2, line 60), and
- g) recovering the information from the frames (column 2, line 64).

As per claim 15, Nohara et al teach Step b) includes generating timing data to signal the occurrence of the information and overhead sections of the frames, and in which Step c) includes scrambling the frames in response the timing data signals of Step b) (column 1, lines 35-40).

As per claim 16, Nohara et al teach Step g) includes generating timing data to signal the occurrence of the information and overhead sections of the received frames, and in which Step f) includes descrambling the received frames in response the timing data signals of Step g) (column 6, 55-60).

8. Claims 8, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nohara et al, U.S. Patent 5,881,154 in view of Kotzin et al, U.S. Patent 4,979,188 in further view of Kim et al, U.S. Patent 5,303,303.

As per claims 8 and 17, Nohara et al teaches encrypting the information section of the frame in accordance with a first predetermined encryption pattern (column 2, lines 50-55). Nohara et al does not teach encrypting the overhead bits with a second predetermined encrypted pattern. White teaches that the header and trailer (overhead) may be encrypted separately from the information-carrying portion (data) (column 1,

lines 43-45). It is more secure to use multiple encryption processes. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of White within the system of Nohara et al because encrypting the header information increases the burden of a rogue to gain information about the transferred data. Kim et al teaches that the use of multiple encryption keys (patterns) is desirable in communication (column 1 lines 23-26). It is obvious that if one was to encrypt the overhead separately from the data, that he/she should use a different encrypt pattern for each. Otherwise, both data and overhead could have simply been encrypted together with the same encryption pattern. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teaching to Kim et al within the system of Nohara et al because using two different encryption schemes greatly improves the security of the system.

With respect to claim 11, the examiner supplies the above-mentioned rationale for the motivation in the rejection of claim 8. It is obvious that claim 11 is decrypting, or undoing, the matter that was encrypted in claim 8. Therefore, the previous motivation of claim 8 applies to the rejection of claim 11.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Huscroft et al, U.S. Patent 6,188,692

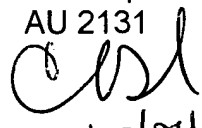
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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Revak whose telephone number is 571-272-3794. The examiner can normally be reached on Monday-Friday, 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR  
  
November 15, 2004

Christopher Revak  
AU 2131  
  
11/15/04